Esma S. YOLCU, Ph.D.

(PubMed search use **"Yolcu E".**)

PERSONAL HISTORY

Business Address: 570 South Preston Street, Louisville, KY 40202-1760
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Home Address: 17018 Mallet Hill Dr.
Louisville, KY 40245
(502)-244-9562

EDUCATION

1993-1998	Ph.D., Biology and Genetics, Ankara University, Ankara, Turkey
1990-1993	M.Sc., Medical Biology and Genetics, School of Medicine, Gazi University, Ankara, Turkey.
1986-1990	B.Sc., Biology, Ankara University, Ankara, Turkey

PROFESSIONAL EXPERIENCE

Postgraduate Training:

2000-2003	Senior Postdoctoral Fellow, Institute for Cellular Therapeutics, School of Medicine, University of Louisville, Louisville, KY, USA
1999-2000	Postdoctoral Fellow, Institute for Cellular Therapeutics, School of Medicine, University of Louisville, Louisville, KY, USA
1998-1999	Postdoctoral Fellow, Department of Molecular Biology and Genetics, Bilkent University, Ankara, Turkey

ACADEMIC APPOINTMENTS

2020-present	Professor, Department of Child Health, School of Medicine, University of Missouri, Columbia, MO.
2014-2020	Associate Professor, Department of Microbiology & Immunology, School of Medicine, University of Louisville, KY.
2005-2020	Member, James Brown Cancer Center, the Stem Cell Biology and Tumor Immunobiology Programs, School of Medicine, University of Louisville, Louisville, KY
2015-2016	Director, Clinical Quality Control, Institute for cellular therapeutics, Medical School, University of Louisville, Louisville, KY
2013-2016	Associate Director, Translational Research, Institute for Cellular Therapeutics, Medical School, University of Louisville, KY.
2007-2016	Director, ICT Imaging and Flow Facility, Medical School, University of Louisville, Louisville, KY
2007-2016	Director, ICT Immunohistochemistry Facility, Medical School, University of Louisville, Louisville, KY
2003-2014	Assistant Professor, Department of Microbiology & Immunology, School of Medicine, University of Louisville, KY.

OTHER POSITIONS AND EMPLOYMENT

1992-1997	Teaching Assistant, Ankara University, Faculty of Science, Department of Biology, Section of Molecular Biology, Ankara, Turkey
1995-1997	Visiting Research Assistant, Turkish Scientific and Technical Research Council, Genetic Engineering and Biotechnology Research Institute, Gebze, Turkey

PROFESSIONAL MEMBERSHIPS AND ACTIVITIES

2013-present	American Society of Hematology
2006-2015	American Heart Association& American Stroke Association
2005-present	Midwest Blood Club
2005-2015	American Diabetes Association
2005-present	Developmental Stem Cell Biology Program
2000-present	American Society of Transplantation
2000-present	The Transplantation Society

Entrepreneurial Activities:

2015-2020	Director of Research and Development, FasCure Therapeutics LLC

HONORS AND AWARDS

2016	**Celebration of Faculty Excellence Award**, University of Louisville, KY
2012	**Celebration of Faculty Excellence Award**, University of Louisville, KY
2010	**Celebration of Faculty Excellence Award**, University of Louisville, KY
2003	**Third Place**: Most Promising Basic Science in the Faculty category, Research!Louisville 2003.
2003	**First Place**: Scientific Importance in the Faculty category, Research!Louisville 2003.
2003	**Young Investigator Award-2,** American Transplant Congress 2003, American Society of Transplantation and American Society of Transplant Physicians
2003	**Young Investigator Award-1**, American Transplant Congress 2003, American Society of Transplantation and American Society of Transplant Physicians
2001-2003	**Postdoctoral Fellowship**, American Heart Association, Ohio Affiliate
2000	American Society of Transplantation "**Transplant 2000 Young Investigator Award"**
1990	Ankara University, Faculty of Science Department of Biology **"Valedictorian"**

COMMITTEE ASSIGNMENTS AND ADMINISTRATIVE SERVICES

University Services:

2019-2020	Member of University of Louisville School of Medicine Faculty Excellence Research Awards committee to select the winners of Scholarship/Research Awards including Basic Science/Applied Sciences award and the Career Achievement in Research award.
2018-2020	Faculty mentor, University of Louisville Cancer Education Program
2016-2016	Member of Chair review committee of Dr. David Hein, Chair of the Department of Pharmacology and Toxicology
2009-2015	Organizer of Michael Tanner Award at Research!Louisville, Louisville, KY

Department Services:

2013-2016	Admission Committee, Department of Microbiology and Immunology, School of Medicine

National/International Committee Service:

2019	Chair of scientific session, the joint meeting of the American Society of Transplant Surgeons and American Society of Transplantation, the American Transplant Congress 2019, Boston, MA, June 1 - 5, 2019
2018-present	Member of Steering Committee, Emerging Science and Technology in Transplantation Cooperative Group, NIH, NIAID.
2018	Member of Organizing Committee, 10th World Congress and Expo on Cell & Stem Cell Research, New York, USA. March 19-21, 2018
2017	Member of Organizing Committee, 8th World Congress and Expo on Cell & Stem Cell Research, Orlando, Florida, USA. March 20-22, 2017
2013	Member of Organizing Committee, 2nd International Conference on Clinical & Cellular Immunology, Las Vegas, NV. October 15-17, 2013.
2013	Student council member, 2nd International Conference on Clinical & Cellular Immunology, Las Vegas, NV. October 15-17, 2013.
2013	Member of Organizing Committee, 3rd World Congress on Cell Science & Stem Cell Research, Baltimore, MD. November 20-22, 2013.
2013	Chair, 3rd International Conference on Vaccines and Vaccination. Las Vegas, NV. July 29-31, 2013.
2012	Chair, International Conference on Clinical & Cellular Immunology, Chicago, IL. October 22-24, 2012.
2009-2011	Member of Abstract Review Committee, American Transplant Congress.

Academic Activities:

2003-present	Research training and supervision of fellows, graduate and undergraduate students
2000-2020	Director, Institute for Cellular Therapeutics Seminar Series
2000-2020	Director, Interdepartmental Immunology Journal Club, Medical School, University of Louisville, Louisville, KY

EDITORIAL WORK

Editorial Board (National and International):

2019-present	Member of Editorial Board, Journal of OBM Transplantation.
2015	Co-Editor, Current Opinion in Organ Transplantation, for the 'Tolerance' section
2014-present	Member of Editorial Board, Journal of Immunology and Infectious Diseases, Annex publishers.
2013-present	Member of Editorial Board, New Journal of Science
2012-present	Member of Editorial Board, Signpost Open Access Journal of Pathobiology and Toxicology
2011	**Co-**Editor, Transplantation Immunology, Special issue in Journal of Clinical & Cellular Immunology
2011-2017	Member of Editorial Board, Journal of Clinical&Cellular Immunology

Ad Hoc Reviewer

2017-present	Journal of Immunology Research
2017-present	Asian Pacific Journal of Tropical Medicine
2013-present	Transplantation Proceedings
2013-present	Cell Transplantation
2012-present	Cancer Research

2011-present Journal of Clinical & Cellular Immunology
2011-present Stem Cells and Development
2008-present Leukemia

Grant Review (National and International):

2019 Special Emphasis Panel/Scientific Review Group 2020/01 ZAI1 SB-I (J1) 1 (U24)
2019 NHLBI Program Project, PAR18-405 study section, (P01)
2019 NIH ZRG1-EMNR-B(50)R study section, Early-Stage Preclinical Validation of Therapeutic Leads for Diseases of Interest to the NIDDK (R01)"
2016 Kentucky Science & Engineering Foundation
2014 The Polish National Science Centre
2013-present Member, Qatar National Research Foundation

Community Services:

1. Judge, Graduate Student posters, Research! Louisville, Louisville, KY, 2018
2. Judge, Meyzeek Science Fair, Louisville, KY, February 15, 2018
3. Judge, Manual Meyzeek Science Fair, Louisville, KY, March 10, 2018
4. Judge, Louisville Regional Science & Engineering Fair, Louisville, KY 2017
5. Judge, DuPont Manual and Meyzeek Regional Science Fair, Louisville, KY 2017
6. Judge, Graduate Student posters, Research! Louisville, Louisville, KY, 2011
7. Judge, Post-doc fellow posters, Research! Louisville, Louisville, KY, 2011
8. Judge, Post-doc fellow posters, Research! Louisville, Louisville, KY, 2010
9. Judge, Graduate Student posters, Research! Louisville, Louisville, KY, 2010
10. Judge, Graduate Student posters, Research! Louisville, Louisville, KY, 2009
11. Judge, Postdoctoral Fellow posters, Research Louisville, Louisville, KY. 2008
12. Judge, Graduate Student posters, Research! Louisville, Louisville, KY, 2007
13. Judge, Postdoctoral Fellow posters, Research! Louisville, Louisville, KY. 2006

EDUCATIONAL ACTIVITIES

Lecturer:

2018-2020 Stem Cell Biology and Regenerative Medicine (PHZB 604 course, one lecture/year), this is graduate level course designed for T32 trainees, graduate students and post-doctoral/clinical fellows, University of Louisville

2013-2020 Advanced Immunology/Stem cells (MBIO 622, one lecture/year) Department of Microbiology and Immunology, University of Louisville

2010-2020 Advanced Immunology/GVHD (MBIO 622, one lecture/year) Department of Microbiology and Immunology, University of Louisville

2016-2017 Research Methods in Microbiology and Immunology (MBIO 690, one lecture/year), Department of Microbiology and Immunology, University of Louisville

2006-2012 Research Methods in Microbiology and Immunology (MBIO 690, one lecture/year), Department of Microbiology and Immunology, University of Louisville

Mentoring Experience: Graduate Students

Trainee	Degree	Mentoring level	Period	Current Position
Abhishek K. Srivastava	Ph.D.	Co-Mentor	10/06- 5/2010	Assistant Prof, University of Pittsburgh, PA
Ryan O Connor	M.S.	Mentor Research	10/2011-2012	NA

Gunes Dinc	Ph.D.	Co-Mentor	11/09-2014	Assistant Professor, Ahi Evran University, School of Medicine, Department of Medical Biology, Kirsehir, Turkey
Kyle Woodward	Ph.D.	Co-Mentor	10/2011-2017	Postdoctoral Fellow, Fred Hutchinson Cancer Research Center, Seattle, WA
Hampartsoum Barsoumian	Ph.D.	Co-Mentor	10/2011-2016	MD Anderson Cancer Center, University of Texas, Houston, TX
Mark Badder	M.S.	Mentor	10/2013-2017	Assistant Manager, Clinical/Regenerex
Pradeep Shrestha	Ph.D.	Co-Mentor	7/2016-Present	
Samantha Morrissey	MD/Ph.D	Co-Mentor	9/2017-Present	
Ali Turan	Ph.D.	Co-Mentor	6/2018-Present	

Postdoctoral Fellows and Technical Personnel

Trainee	Type	Mentoring level	Period	Current Position
Andrea Merchak	B.S.	Supervisor	2015-2016	Graduate Stu
Melissa Binion	Und. grad	Supervisor	2015-2016	Res Technologist II/UofL
Amanda Harrison	M.S.	Supervisor	2014-2015	Teacher at JCPS
Anita Chhabra	Ph.D.	Supervisor	2014-2016	Quality Control Manager/ UofL
Dereje Desta	Ph.D.	Supervisor	2013-2016	Research Technologist/UofL
Yujie Wen	M.D./Ph.D.	Supervisor	2013-2016	Lab Manager/UofL
Orlando Grimany	B.S.	Supervisor	2001-present	Res Technologist III/UofL
Zhengda Sun	Ph.D.	Supervisor	2007-12/2008	Department of Radiology, SFGH, UCSF
Lalit Batra	PhD	Supervisor	2016-present	Postdoctoral Fellow, UofL
Christopher L. Williams	PhD	Supervisor	2016-2017	NA
Alper Togay	M.D.	Supervisor	2018-2019	İzmir Tepecik Training and Research Hospital

Thesis Committees

Candidate	Date	Department
Padmini Jayaraman	2004-2007	Microbiology and Immunology, UofL, Louisville KY.
Joseph Reynolds	2005-2007	Microbiology and Immunology, UofL, Louisville KY.
Shravan K. Madireddi	2007-2010	Microbiology and Immunology, UofL, Louisville KY.
Rich-Henry Schabowsky	2007-2010	Microbiology and Immunology, UofL, Louisville KY.
Colleen Tucker	2007-2010	Microbiology and Immunology, UofL, Louisville KY.

Xianyan Qu	2007-2010	Microbiology and Immunology, UofL, Louisville KY.
Abhishek Srivastava	2007-2011	Microbiology and Immunology, UofL, Louisville KY.
Wan Wu	2009-2011	Microbiology and Immunology UofL Louisville KY.
Ryan O Connor	2011-2012	Physiology and Biophysics, UofL, Louisville KY.
Sobha R. Bodduluri	2009-2013	Microbiology and Immunology, UofL, Louisville KY.
Anita Y Chhabra	2010-2013	Microbiology and Immunology, UofL, Louisville KY.
Gunes Dinc	2010-2014	Microbiology and Immunology, UofL, Louisville KY.
Kyle Woodward	2012-2017	Microbiology and Immunology, UofL, Louisville KY
Hampartsoum Barsoumian	2012-2016	Microbiology and Immunology, UofL, Louisville KY.
Pradeep Shrestha	2016-2020	Microbiology and Immunology, UofL, Louisville KY.
Samantha Morrissey	2017-2020	Microbiology and Immunology, UofL, Louisville KY.
Karen E Martin	2018-	George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology

Qualifying examination committee

Candidate	Date	Role	Department
Ryan Reca	11/19/2003	Member	Microbiology and Immunology, UofL, Louisville KY.
Lichun Wang	08/30/2004	Member	Microbiology and Immunology, UofL, Louisville KY.
Fabien Habyarimana	08/29/2005	Member	Microbiology and Immunology, UofL, Louisville KY.
Huizhi Wang	07/20/2006	Member	Microbiology and Immunology, UofL, Louisville KY.
Lacey J Gunn	08/28/2008	Member	Microbiology and Immunology, UofL, Louisville KY.
Yanfang Zhu	08/27/2009	Member	Microbiology and Immunology, UofL, Louisville KY.
Anita Chhabra	07/21/2010	Member	Microbiology and Immunology, UofL, Louisville KY.
Neal Bhutiani	04/12/2016	Chair	Microbiology and Immunology, UofL, Louisville KY.
Anne Elena Geller	03/26/2018	Chair	Microbiology and Immunology, UofL, Louisville KY.

Under graduate and high school students

Trainee	Position/school name	Period	Current Position
Margo P. Emont	DuPont Manual High School	2005-2007	Post-doctoral Fellow, Harvard University
Jenci Hawthorne	DuPont Manual High School	2009-2013	Medical Stu. University of Louisville
Tia Dowling	Kentucky Country Day High School	2015-2016	Undergrad. Emory University
Manting Xu	DuPont Manual High School	2014-2017	Undergrad. Williams College
Rojin E Shirwan	DuPont Manual High School	2017-present	High School student
Justin Xu	DuPont Manual High School	2019-present	High School student
Jonah Xu	DuPont Manual High School	2019-present	High School student
Mustafa Ozturk	Izmir Institute of Technology, Turkey	8/2019-9/2019	Under Graduate student

GRANTS AND CONTRACTS

Current:

1) Funding Agency: **National Institutes of Health (Shirwan/Yolcu/Garcia)**
   Agency Number: 1U01AI132817-01
   Project Dates: 06/20/17-05/31/22

Project Title: Targeted delivery of immunomodulatory biologics for induction of immune privilege to allogeneic pancreatic islet grafts.
Total Award: $1,954,270
Role: **Co-Principle Investigator (MPI)**

2) Funding Agency: **National Institutes of Health (Yolcu)**
Agency Number: 1R43AI136151-01
Project Dates: 08/20/2018 – 07/31/2020
Project Title: Exploiting activation-induced cell death as a means of inducing tolerance to kidney allografts.
Total Award: $224,999
Role: **Principle Investigator**

3) Funding Agency: **National Institutes of Health/NIAID (Shirwan)**
Agency Number: 1R01AI121281-01A1
Project Dates: 11/05/18-10/31/2023
Project Title: A novel immunomodulatory approach to overcome innate and adaptive immune barriers to islet transplantation.
Total Award: $1,943,360.00
Role: **Co-Investigator**

4) Funding Agency: NIH, NIDDK (Shea/Shirwan)
Agency Number: 1R21AI147677-01
Project Dates: 07/01/19-06/30/21
Project Title: Establishing immunoprivileged scaffolds for transplantation of immature beta.
Total Award: $440,250
Role: **Co-Investigator**

5) Funding Agency: **Juvenile Diabetes Research Foundation (Garcia/Shirwan/Markmann)**
Agency Number: 2-SRA-2016-271-S-B
Project Dates: 12/01/16-09/30/19
Project Title: Immunomodulatory Materials for Islet Engraftment in Non-Human Primates.
Total Award: $1,119,470
Role: **Co-Investigator of Subaward**

6) Funding Agency: **Charitable Gift (Shirwan/Yolcu)**
Agency Number: N/A
Project Dates: 09/01/18
Project Title: William Marvin Petty, MD Research Fund (Shirwan/Yolcu)
Total Award: $500,000
Role: **Multi Principle Investigator**

Pending:

1) Title: Immunomodulatory materials for human stem cell-derived beta cell transplantation
Agency: NIH

Grant number: R01DK122542-01A1
Dates: 04/01/20-30/31/24
Total cost: $2,873,120
Role: Co-investigator

2) Title: Coacervates for localized and sustained delivery of immunomodulators to prevent islet allograft rejection
Agency: DOD
Grant number: N/A
Dates: 07/01/20-06/30/23
Total cost: $1,610,282
Role: Co-investigator

Past Support:

1) Funding Agency: National Institutes of Health (Yolcu)
Agency Number: 1R41DK111314-01
Project Dates: 07/01/17-06/30/19
Project Title: SA-FasL-engineered human islets as a novel product for the treatment of type 1 diabetes.
Total Award: $224,529
Role: Principle Investigator

2) Funding Agency: National Institutes of Health
Agency Number: 1R56AI121281-01
Project Dates: 02/15/16-01/31/18
Project Title: A novel immunomodulatory approach to overcome innate and adaptive immune barriers to islet transplantation.
Total Award: $377,529
Role: Co-Investigator

3) Funding Agency: Regenerex, LLC/Novartis (CONTRACTS)
Agency Number: 03-0553-09
Project Dates: 09/01/14-08/31/16* (*funding is renegotiated each year)
Project Title: Mechanism of the Facilitating Cell
Role: Co-Investigator (Ildstad is PI)
Percent Effort: 97%

4) Funding Agency: American Diabetes Association
Agency Number: 1-12-BS-191
U of L number: GB120059
Project Dates: 01/01/12-6/31/14
Project Title: Immunomodulation with SA-FasL-engineered pancreatic islets for the treatment of type 1 diabetes.
Total Award: $316,245 ($274,996 DC, $41,249 IDC)
Role: Co-Investigator (Shirwan is PI)
Percent Effort: 15%

5) Funding Agency: Juvenile Diabetes Research Foundation (JDRF)
Agency Number: 17-2012-527
U of L number: GB121273A

Project Dates: 09/01/12-09/31/14
Project Title: Transplantation of SA-FasL-engineered pig islets in normal and humanized NSG mouse models
Total Award: $900,000 ($818,182 DC, $81,818 IDC)
Role: **Co-Investigator (Shirwan is PI)**
Percent Effort: 50%

6) Funding Agency: **Kentucky Science & Engineering Foundation**
Agency Number: KSEF-2927-RDE-016
U of L number: GB130922
Project Dates: 07/01/13-06/30/14
Project Title: Exploiting the immunoregulatory function of PDL1/FasL for the treatment of type 1 diabetes.
Total Award: $30,000
Role: **Principal Investigator**

7) Funding Agency: **American Heart Association**
Project Dates: 07/01/09-06/30/12
Agency Number: 1R41DK081296-01A2
U of L number: GB090887A1/A2
Project Title: In vivo expansion of T regulatory cells for the establishment of mixed chimerism and tolerance to cardiac allograft.
Total Award: $132,000 ($120,000 DC, $12,000 IDC)
Role: **Principal Investigator**
Percent Effort: 15%

8) Funding Agency: **Clinical and Translational Science Pilot Grant Program**
Agency Number: NONE
U of L number: 20064
Project Dates: 07/01/10-12/31/11
Project Title: Engineering pancreatic islets with immunomodulatory proteins for the treatment of type 1 diabetes
Total Award: $49,980 ($49,980 DC)
Role: **Principal Investigator**
Percent Effort: 5%

9) Funding Agency: **NIH (R44)**
Agency Number: 2R44AI071618-02
U of L number: IB080638
Project Dates: 08/01/08-07/31/11
Project Title: ApoVax104-HPV as a Novel Vaccine for Cervical Cancer (Phase II)
Total Award: $607,189 ($410,262 DC, $196,927 IDC)
Role: Co-Investigator (Shirwan is PI)
Percent Effort: 45%

10) Funding Agency: **Kentucky Diabetes Research Board**
Agency Number: KDRP-PP09-31
U of L number: GB080612
Project Dates: 07/01/08-12/31/10

Project Title: Expanding T regulatory cells as a means of establishing mixed chimerism for the prevention and treatment of Type 1 diabetes
Total Award: $50,000 ($50,000 DC)
Role: **Principal Investigator**
Percent Effort: 5%

11) Funding Agency: **United States-Israel Binational Science Foundation**
Agency Number: NONE
U of L number: GB040506/A/B/C
Project Dates: 11/01/04-05/31/10
Project Title: Role of Fas-Ligand in Hematopoietic stem cell engraftment and transplant tolerance.
Total Award: $55,121 ($47,540 DC, $7,581 IDC)
Role: Co-Investigator (Askenasy is PI)
Pecent Effort: 4%

12) Funding Agency: **NIH**
Agency Number: 1 R41 DK079394-01
U of L number: IB070638
Project Dates: 08/06/07-01/31/09
Project Title: ApoFasL: A Novel Therapeutic for T1D
Total Award: $215,184 ($145,395 DC, $69,789 IDC)
Role: Co-Investigator (Shirwan is PI)
Percent Effort: 20%

13) Funding Agency: **Kentucky Science & Technology Corp**
Project Dates: 11/01/07-10/31/09
Agency Number: NONE
U of L number: IB071485
Project Title: ApoFasL as a Novel Immunotherapy for Type 1 Diabetes
Total Award: $102,086 ($92,805 DC, $9,281 IDC)
Role: Co-Investigator (Shirwan is PI)
Percent Effort: 20% (7/08-10/09)

14) Funding Agency: **NIH**
Agency Number: R21 HL080108-01
U of L number: GB041260
Project Dates: 06/01/05-05/31/08
Project Title: Engineering Bone Marrow Cells for Immunotherapy
Total Award: $399,068 ($271,475 DC, $127,593 IDC)
Role: **Principal Investigator**
Percent Effort: 25%

15) Funding Agency: **American Diabetes Association**
Agency Number: 1-05-JF-56
U of L number: GB050095
Project Dates: 01/01/05-12/31/07
Project Title: A Novel Approach to Generate Mixed Hematopoetic Chimerism for the Treatment of Type 1 Diabetes
Total Award: $414,000 ($360,000 DC, $54,000 IDC)
Role: **Principal Investigator**

Percent Effort: 30%

Funding Agency: **American Heart Association**
Project Dates: 01/01/05-12/31/08
Project Title: A Novel Approach to Generate Mixed Hematopoetic Chimerism for the Treatment of Type 1 Diabetes
Total Award: $260,000
Role: **Principal Investigator**
It was declined because of overlap with American Diabetes Association

16) Funding Agency: **NIH/ NIAID**
Agency Number: R01 AI-47864
U of L number: G010687
Project Dates: 12/15/01-11/30/07
Project Title: Allograft Tolerance With FasL-Mediated Apoptosis
Total Award: $1,144,000 ($800,000 DC, $344,000 IDC)
Role: Co-Investigator (Shirwan is PI)
Percent Effort: 67.89% (4/03-8/04), 55% (9/04-12/04), 25% (1/05-8/06), 15% (9/06-11/07)

17) Funding Agency: **NIH**
Agency Number: R21 AI-057903-02
U of L number: G050458
Project Dates: 09/01/04-8/31/07
Project Title: A Novel Approach to Prevent/and Treat Type 1 Diabetes
Total Award: $588,000 ($400,000 DC, $188,000 IDC)
Role: Co-Investigator (Shirwan is PI)
Percent Effort: 30% (

18) Funding Agency: **American Heart Association**
Agency Number: 0120396B
U of L number: G010409
Project Dates: 07/01/01-06/30/03
Project Title: Induction of Tolerance to Allografts Using FasL as an Immunomodulatory Molecule
Total Award: $74,540 ($74,540 DC)
Role: **Principal Investigator (Fellowship)**
Percent Effort: 100%

CONTRACTS:
Past:

1) Funding Agency: **Department of Homeland Security**
Agency Number: HSHQDC-11-C-00136
U of L number: IB110262
Project Dates: 10/01/11-09/30/12
Project Title: ApoVax 104-FMD as a Novel Vaccine for Foot and Mouth Disease
Total Award: $171,785 ($115,099 DC, $56,686 IDC)
Role: **Co-Investigator (= Co-PI. Shirwan is PI)**
Percent Effort: 50% (4/12-8/12), 29% (9/12)

2) Funding Agency: **NIH**
Agency Number: 1R41DK081296-01A2
U of L number: IB090667
Project Dates: 01/01/12-08/31/13
Project Title: ApoFasL as a Novel Treatment for Type 1 Diabetes in Non human Primates
Total Award: $235,872 ($158,303 DC, $77,569 IDC)
Role: **Co-Investigator (Shirwan is PI)**
Percent Effort: 23% (9/10-8/12)

ISSUED PATENTS

1. Ozturk M., N. Yurdusev, T. Yagci, **E. Yolcu**. The usage of anti p53 monoclonal antibodies. No# TR 1999 02750 B
2. Shirwan, H., K.G. Elpek, and **E.S. Yolcu**. Immunostimulatory compositions and methods. **South African** Patent 2008/05079
3. Shirwan, H., K.G. Elpek, and **E.S. Yolcu**. In vivo Cell Surface Engineering. South African Patent 2008/05081
4. Shirwan, H., K.G. Elpek, and **E.S. Yolcu.** Immunostimulatory compositions and methods. US Patent 7,598,345. 10/6/2009
5. Shirwan, H., K.G. Elpek, and **E.S. Yolcu**. Immunostimulatory compositions and methods. US patent 8,017,582. 9/13/2011

Pending patents

1. Shirwan, H.S., A.J. Garcia, **E.S. Yolcu**, H. Zhao, D. Headen. FasL-engineered biomaterials with immunomodulatory function. PCT/US18/21742, 04/09/2018.
2. Shirwan, H., **E.S. Yolcu,** R.K. Sharma. Anti-cancer monotherapy. U.S. provisional patent 62/767,901, 11/15/2018.
3. Shirwan, H., **E.S. Yolcu,** L. Shea. Engineering co-glycolide (PLG) nanoparticles/microporous scaffolds with immunomodulatory molecules for treatment of foreign graft rejection and autoimmunity. US provisional filled Nov 15, 2018.

PUBLICATIONS

Peer-Reviewed:

1. **Yolcu E**, Sayan BS, Yagci T, Cetin-Atalay R, Soussi T, Yurdusev N, Ozturk M. A monoclonal antibody against DNA binding helix of p53 protein. Oncogene 20:1398-1401, 2001.
2. **Yolcu, E.**, J. Fang, and H. Shirwan**.** Autoimmune responses regulate alloimmunity for prolonged cardiac allograft survival. Transplant. Proc. 33:93-93, 2001.
3. Shirwan, H**.** A. Mhoyan, **E. Yolcu**, and S. Ibrahim. Intrathymic immune regulation with donor class I allopeptides leads to the development of immunoregulatory cells that maintain tolerance to cardiac allografts . Transplant. Proc. 33:80-80, 2001.
4. **Yolcu, E.S.,** N. Askenasy. N.P. Singh, Lamhamedi Cherradi, H. Shirwan. Modification of the cell membrane for rapid display of exogenous proteins as a novel means of immunomodulation: FasL-decorated splenocytes prevent islet allograft rejection. Immunity, 17: 795-808, 2002.
5. Askenasy, N., **E.S. Yolcu**, Z. Wang, **H. Shirwan,** and D.L. Farkas. Cardiac allograft acceptance after localized bone marrow transplantation by isolated limb perfusion in non-myeloablated recipients. Stem Cells 21:200-207, 2003.
6. Askenasy, N., ***E.S. Yolcu**, Z. Wang, and H. Shirwan**.** The display of Fas-ligand protein on cardiac vasculature as a novel means of regulating allograft rejection. Circulation 107:1525-1531, 2003. (***shared first authorship)**
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ABSTRACTS AND PRESENTATIONS

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Oral Presentations:

1. **Yolcu, E.,** J. Fang, and H. Shirwan. Alloimmune regulation by autoimmune responses leads to prolonged cardiac allograft survival. Transplant 2000, American Society for Transplantation and American Society of Transplant Surgeon. Chicago, IL. May 13-17, 2000. **Young Investigator Award**
2. **Yolcu, E.,** J. Fang, and H. Shirwan. Alloimmune regulation by autoimmune responses leads to prolonged cardiac allograft survival. XVIII. International Congress of Transplantation Society, Rome, Italy. August 27-September 1, 2000.
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8. Singh, N.P., **E.S. Yolcu,** and H. Shirwan. A novel approach to cancer immunotherapy: tumor cells decorated with costimulatory molecule (CD80) generate effective antitumor immunity. American Association of Immunologist, May 6-10, 2003. Denver, Colorado.
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14. Singh N.P., **E.S. Yolcu**, and H. Shirwan. Immunotherapy with tumor cells displaying costimulatory molecule CD80 eradicates pre-existing IL-10 secreting B lymphoma in an animal model that has acquired immunosuppressive environment. American Association for Cancer Research. 95th Annual Meeting, March 27-31, 2004. Orlando, Florida.
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19. Kilinc, M.O., L. Mukundan, **E.S. Yolcu,** N.P. Singh, J. Suttles, H. Shirwan. Streptavidin as a chaperone to generate multimeric immunomodulatory molecules with improved functions. 12th International Congress of Immunology and 4th Annual Conference of FOCIS, Montreal, Canada July 18-23, 2004.
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31. **Yolcu, ES.,** Hong Zhao, Laura Bandura-Morgan, Chantale Lacelle, Nadir Askenasy, Haval Shirwan.CD4+CD25+FoxP3+ T Regulatory Cells Play a Critical Role in Tolerance to Pancreatic Islets Engineered to Display on Their Surface an Exogenous FasL Protein. 95th American Association of Immunologists Annual Meeting. April 5-10, 2008. San Diego, CA.
32. Sun, Z., Haval Shirwan, Nadir Askenasy, **Yolcu E.S**. Establishment of allogeneic mixed chimerism using bone marrow cells engineered to display on their surface an exogenous

FasL protein with potent apoptotic activity. American Transplant Congress, May 31 – June 4, 2008, Toronto, ON, Canada

33. Zhao, H., **E.S Yolcu**, Laura Bandura-Morgan, Chantale Lacelle, Nadir Askenasy, Shirwan, H. Pancreatic islets engineered to display on their surface an exogenous FasL protein with potent apoptotic activity achieve tolerance in allogeneic recipients. American Transplant Congress, Toronto, Canada, May 31 – June 4, 2008.
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35. Sharma, RK., Rich-Henry Schabowsky, Abhishek K. Srivastava**, Esma S. Yolcu**, Kutlu G. Elpek, Hong Zhao, Shravan Madireddi, and Haval Shirwan. SA-4-1BBL as an immune modulator and vehicle to deliver antigens into dendritic cells for the generation of robust antitumor immune responses. 97th American Association of Immunologists Annual Meeting, May 7-11, Baltimore, MD, 2010.
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40. Sharma, RK, A.K. Srivastava**, E.S. Yolcu** and H. Shirwan. CD4+ T cells are critical to the therapeutic efficacy of TAA-based cancer vaccines and control of recurrences. 98th Annual Meeting of American Association of Immunologists "IMMUNOLOGY 2011", San Francisco, CA. May 13-17, 2011
41. **Yolcu, E.S**., H. Zhao, L.B. Morgan, S.Madireddi, H. Shirwan. Immunomodulation with allogeneic pancreatic islets engineered to display on their surface a novel form of FasL protein induces localized tolerance via apoptosis/phagocytes/TGF-b axes. 24th International Congress of the Transplantation Society, Berlin, Germany. July 15 – 19, 2012
42. Zhao, H., **E.S. Yolcu**, K. B. Woodward, H. Shirwan. Allogeneic pancreatic islets engineered to display on their surface a novel form of FasL protein induces both allo and autotolerance in spontaneously diabetic NOD mouse model. 24th International Congress of The Transplantation Society, Berlin, Germany. July 15 - 19, 2012.
43. Hong Zhao*, **Esma S Yolcu*,** Kyle B Woodward, Niloufar Ehsani Ahmad, Laura Bandura-Morgan, Nadir Askenasy, and Haval Shirwan. Rat islets engineered to display on their surface an apoptotic form of FasL protein induces robust localized tolerance through $CD4^+CD25^+FoxP3^+$ Treg cells in mice. 2014 WORLD TRANSPLANT CONGRESS, San Francisco, CA, July 26-31, 2014. **Young Investigator Award** (*equal contribution).
44. Joseph R. Leventhal, Mary J Elliott, **Esma S. Yolcu**, Larry D. Bozulic, David J Tollerud, James M Mathew, Iwona M Konieczna, Michael G Ison, Mark Badder, Michael M I Abecassis, Joshua Miller and Suzanne T. Ildstad. Immune Reconstitution in Recipients of Living Donor Kidney/Hematopoietic Stem + Facilitating Cell Transplants. 56th American Society of Hematology Annual Meeting, San Francisco, CA, December 6-9, 2014.

45. Shirwan, H, H. Zhao, K. Woodward, and **E. S. Yolcu**. Mechanistic basis of allotolerance induced by SA-FasL-engineered pancreatic islets, 6th World Congress on Cell & Stem Cell Research, Philadelphia, PA. February 29- March 02, 2016
46. Hong Zhao, Kyle B Woodward, **Esma S Yolcu**, Melanie Graham, Bernhard Hering, and Haval Shirwan. Porcine Islets Engineered to Display SA-FasL Protein on Their Surface Induce Tolerance in Mice Following Transplantation into the Liver or Under the Kidney Capsule. American Transplant Congress (ATC), Boston, MA, June 11-15, 2016.
47. Yujie Wen, Esma Yolcu, Yiming Huang, Larry E. Kahn, and Suzanne T Ildstad. Mobilized human peripheral blood mononuclear cells (PBMCs) contain higher number of IL-10 producing B cells in CD8+TCR- facilitating cell population than non-mobilized PBMCs. 26th International Congress of The Transplantation Society, Hong Kong, August 18 -23, 2016.
48. Hong Zhao, Kyle B Woodward, **Esma S Yolcu**, Melanie Graham, Bernhard Hering, and Haval Shirwan. SA-FasL-Engineered Porcine Islets Induce Tolerance in Mice Following Intraportal Transplantation. 26th International Congress of The Transplantation Society, Hong Kong, August 18 -23, 2016.
49. Kyle B Woodward, Hong Zhao, **Esma S Yolcu**, Feng Wang, Melanie Graham, Bernhard Hering, and Haval Shirwan. CD4+CD25+FoxP3+ Treg Cells Are Critical to Tolerance Induction by SA-FasL-engineered Porcine Islets Transplanted into Mice. 26th International Congress of The Transplantation Society, Hong Kong, August 18 -23, 2016.
50. **Esma S Yolcu**, Kyle B Woodward, Hong Zhao, and Haval Shirwan. Dual Phases and Mechanistic Basis of Tolerance Induced by Allogeneic Pancreatic Islets Engineered with SA-FasL Protein. 26th International Congress of The Transplantation Society, Hong Kong, August 18 -23, 2016
51. Weaver, JD, DM Headen, **E Yolcu**, H Shirwan, AJ García. Microgels presenting SA-FasL achieve allogeneic islet graft acceptance without chronic immunosuppression. Society for Biomaterials 2017 Annual Meeting and Expo, Minneapolis, Minnesota, April 5-8, 2017.
52. D Headen, K Woodward, J Weaver, MM Coronel, P Shrestha, W Bowen, C Johnson, L Shea, **E Yolcu**, A Garcia, H Shirwan. Allogeneic Graft Tolerance without Immunosuppression via Engineered Immunomodulatory Signal Presentation. 2017 TERMIS – Americas Conference & Exhibition. December 3-6, Charlotte, NC 2017
53. Lalit Batra, Pradeep Shrestha, **Esma S Yolcu**, Hong Zhao, William S Bowen, Kyle B Woodward, María M. Coronel, Min Tan, Andrés J. García, Haval Shirwan. PD-L1-engineered pancreatic islet grafts overcome rejection in allogeneic recipients. IMMUNOLOGY 2018, May 4-8, Austin, TX, 2018.
54. Lalit Batra, Pradeep Shrestha, **Esma S Yolcu**, Hong Zhao, William S Bowen, Kyle B Woodward, María M. Coronel, Min Tan, Andrés J. García, Haval Shirwan. The transient display of a chimeric PD-L1 protein on pancreatic islets promotes indefinite survival in allogeneic recipients. 27th International Congress of The Transplantation Society, Madrid, Spain, June 30th to July 5th, 2018.
55. Pradeep Shrestha, William S Bowen, Lalit Batra, Min Tan, **Esma S Yolcu** and Haval Shirwan. CD47 Overcomes Early Loss of Pancreatic Islet Grafts Transplanted Intraportally. 27th International Congress of The Transplantation Society, Madrid, Spain, June 30th to July 5th, 2018
56. M. M. Coronel, J. Weaver, M. Hunckler, **E. Yolcu**, H. Shirwan, A. J. García. Synthetic Immunomodulatory Biomaterials to Improve Islet Graft Survival. 27th International Congress of The Transplantation Society, Madrid, Spain, June 30th to July 5th, 2018.
57. Kyle B. Woodward, Devon M. Headen, Pradeep Shrestha, Min Tan, William S. Bowen, María M. Coronel, Michael D. Hunckler, Jessica D. Weaver, **Esma S. Yolcu**, Andrés J. García, Haval Shirwan. Immunomodulation with SA-FasL-engineered microgels achieves long-term survival of allogeneic islet grafts. 27th International Congress of The Transplantation Society, Madrid, Spain, June 30th to July 5th, 2018

58. Lalit Batra, Hampartsoum B. Barsoumian, Pradeep Shrestha, Jenci L. Hawthorne, William S. Bowen, Hong Zhao, Nejat K. Egilmez, Jorge G. Gomez-Gutierrez, Haval Shirwan, and **Esma S. Yolcu**. A novel agonist of CD137 immune checkpoint stimulator serves as a cancer immunoprevention agent with efficacy against various tumor types. IMMUNOLOGY 2019, May 9-13, San Diego, CA, 2019 (received 2019 AAI Trainee Abstract Award).
59. M. M. Coronel, J. Weaver, M. Hunckler, **E. Yolcu**, H. Shirwan, A. J. García. Immunomodulatory Biomaterials to Improve Allogeneic Islet Graft Survival in a Murine Diabetic Model. Society for Biomaterials, WA, WA, April 2019.
60. J. Lei, H. Deng, K. M. Lee, C. Peters, G. C. Rickert, I. A. Rosales, M. M. Coronel, **E. S. Yolcu**, H. Shirwan, A. J. García, J. F. Markmann. Allogenic Islets Cured Diabetes for Long-Term When Transplanted in Omental Pouch in a non-Human Primate Islet Transplant Model. American Transplant Congress, Boston, MA, June 1-5, 2019

Poster Presentations:

1. **Yolcu, E**., J. Fang, and H. Shirwan. Autoimmunity counter attack alloimmune responses for prolonged cardiac allograft survival. Research Louisville, 2000.
2. **Yolcu, E.S.,** N. Askenasy, N.P. Singh, K.G. Elpek, O. Kilinc, M.A. Eskan and H. Shirwan. Modification of the cell membrane for rapid display of proteins as an alternative to gene therapy for immunomodulation. Research!Louisville, Louisville, KY. November 3-7, 2003. **First and Third Place in the Faculty Category**
3. N.P. Singh, **E.S. Yolcu,** and Haval. Shirwan. A Novel approach to cancer immunotherapy: Tumor cells displaying costimulatory molecule (CD80) prevent tumor development and generate effective antitumor immunity. Research!Louisville, Louisville, KY. November 3-7, 2003. **Honourable Mention**
4. **Yolcu, E.S.**, S. Koksoy, H. Shirwan. Chronic cardiac allograft rejection in rats shows a dynamic interplay between IFN-γ and IL-10 producing T cells. Research Louisville! 2004.
5. Kilinc, M.O., L. Mukundan, **E.S. Yolcu**, N.P. Singh, J. Suttles, H. Shirwan. Streptavidin as a chaperone to generate multimeric immunomodulatory molecules with improved functions. Research Louisville! 2004.
6. Koksoy, S., Elpek, K.G., **Yolcu, E.S.,** and H. Shirwan. Intrathymic Immunomodulation induced tolerance to cardiac allografts is established by indirect recognition primed $CD4^{+}CD25^{+}$ Treg. Research Louisville! 2004.
7. **Yolcu, E.S.**, S. Koksoy, H. Shirwan. Chronic cardiac allograft rejection in rats shows a dynamic interplay between IFN-γ and IL-10 producing T cells. Research Louisville! 2004.
8. Franke DDH, **ES Yolcu,** MM Kosiewicz, P Alard, and H Shirwan. Ex vivo treatment of diabetogenic splenocytes with a novel form of FasL delays onset and partially prevents Type 1 diabetes in and NOD/Lt-Reag1 null adoptive transfer model. Experimental Biology Meeting, San Diego, CA, April 2-6, 2005.
9. **Yolcu, ES,** G. Xiao, D. Dierfeldt, H. Zhao, C. Lacelle, H. Shirwan. Humoral Immune Responses to Cardiac Allografts in the Rat is Dominated by Antibodies Against Donor Allogeneic Class II MHC Molecules. Research!Louisville Louisville, KY. 2006.
10. Elpek, K.G., **Yolcu, E.S**., Franke, D.D.H., Lacelle, C., and H. Shirwan Novel Approach to Expand CD4+ CD25+ Regulatory T Cells. Louisville, KY. November 29, 2006.
11. Sharma, R.K., K.G. Elpek, **E.S. Yolcu**, and H. Shirwan. A novel vaccine approach for the treatment of cervical cancer. **FIRST PRIZE** in Postdoctoral category at James Brown Cancer Center 5th Retreat, Louisville, KY, November 29, 2006.
12. **Yolcu, E.S**., Gu, X., Zhao, H., Lacelle, C., and H. Shirwan**.** Humoral immune response to cardiac allografts in the rat is dominated by antibodies against donor allogeneic class II MHC molecules. World Transplant Congress 2006, Boston, MA, July 22-27, 2006.
13. Shirwan, H., X. Gu, C. Lacelle, H. Zhao, and **E.S. Yolcu**. ProtEx™ Technology as an Alternative to Gene Therapy for Immunomodulation: FasL-Decorated Donor Splenocytes

Induce Tolerance to Cardiac Allografts. Research!Louisville, Louisville, KY. October 10-13, 2006. First Place in the Faculty Category For Innovation In Biotechnology

14. **Yolcu, E.S.**, H. Zhao, X. Gu, C. Lacelle, L. Bandura-Morga, N. Askenasy, and H. Shirwan. Immunomodulation with donor cells decorated with a novel form of FasL induced tolerance to cardiac allografts. American Transplant Congress 2007, San Francisco, CA, May 5-9, 2007.
15. Shirwan, H. H. Zhao, C. Lacelle, N. Askenasy, and **E.S. Yolcu**. A novel approach to transplantation tolerance: direct display of a novel form of FasL protein on allogeneic islets results in prolonged graft survival. American Transplant Congress 2007, San Francisco, CA, May 5-9, 2007
16. **Yolcu, E.S.**, H. Zhao, X. Gu, C. Lacelle, L. Bandura-Morgan, N. Askenasy, H. Shirwan. Donor Splenocytes decorated with a novel form of FasL induced tolerance to cardiac allografts. Immunology 2007, The American Association of Immunologists, Miami Beach, FL, May 18-22, 2007.
17. Shirwan, H. Zhao, C. Lacelle, N. Askenasy, **E.S. Yolcu**. Display of a novel form of FasL protein on allogeneic islets results in prolonged graft survival. Immunology 2007, The American Association of Immunologists, Miami Beach, FL, May 18-22, 2007
18. R K Sharma, K.G. Elpek, **E.S. Yolcu**, H. Zhao, L Bandura-Morgan and H. Shirwan. A novel therapeutic vaccine approach for cervical cancer. AMLI Annual meeting Chicago, IL, Aug 9-12th 2007.
19. R K Sharma, K.G. Elpek, **E.S. Yolcu**, R.H. Schabowsky, H. Zhao, L Bandura-Morgan, and H. Shirwan. A novel vaccine approach for immunothe rapy of cervical cancer. Research Louisville 2007, Oct 16-18, Louisville, KY.
20. R K Sharma, K.G. Elpek, **E.S. Yolcu**, R.H. Schabowsky, H. Zhao, L. Bandura and H. Shirwan. A novel vaccine for immunotherapy of cervical cancer accepted for upcoming 6th James Brown Cancer Retreat 2007.
21. **Yolcu**, **ES.**, Hong Zhao, Laura Bandura-Morgan, Chantale Lacelle, Nadir Askenasy, Haval Shirwan.CD4+CD25+FoxP3+ T Regulatory Cells Play a Critical Role in Tolerance to Pancreatic Islets Engineered to Display on Their Surface an Exogenous FasL Protein. 95th American Association of Immunologists Annual Meeting. April 5-10, 2008. San Diego, CA.
22. **Yolcu, ES.,** Hong Zhao, Laura Bandura-Morgan, Chantale Lacelle, Nadir Askenasy, Haval Shirwan. CD4+CD25+FoxP3+ T regulatory cells play a critical role in tolerance to allogeneic pancreatic islets engineered to display on their surface an exogenous FasL protein. American Transplant Congress, May 31 – June 4, 2008, Toronto, ON, Canada
23. Zhao, H., **E.S. Yolcu**, Laura Bandura-Morgan, Chantale Lacelle, Nadir Askenasy, Haval Shirwan. Immunomodulation with allogeneic splenocytes engineered to display on their surface PDL1 not only is inefficient in inducing tolerance, but also negates tolerogenic effect of FasL displaying donor cells. American Transplant Congress, May 31 – June 4, 2008, Toronto, ON, Canada
24. Sharma R.K., Kutlu G. Elpek, **Esma s. Yolcu**, Richard H. Schbowsky, Hong zhao, Laura Bandura, Haval Shirwan. A novel therapeutic vaccine for cervical cancer. 2008 AACR Annual Meeting April 12-16, in San Diego, CA.
25. Zhao, H., **E.S. Yolcu**, Laura Bandura-Morgan, Chantale Lacelle, Nadir Askenasy, Haval Shirwan. Pancreatic Islets Engineered to Display on Their Surface an Exogenous FasL Protein Survive Indefinitely in Allogeneic Recipients. 95th American Association of Immunologists Annual Meeting. April 5-10, 2008. San Diego, CA.
26. Sun Zhengda, Haval Shirwan, Narendra P. Singh, Nadir Askenasy, and **Esma S. Yolcu**. A novel approach to prevent GVHD: donor cells engineered to display on their surface a recombinant form of FasL protein effectively prevent lethal GVHD in a mouse model. 50th American Society of Hematology Annual Meeting. Dec 6-9, 2008. San Francisco, CA.

27. Laura Bandura-Morgan, Hong Zhao, **Esma S Yolcu**, Chantale Lacelle, Nadir Askenasy, Haval Shirwan. CD4+CD25+FoxP3+ T regulatory cells play a critical role in tolerance to allogeneic pancreatic islets engineered to display on their surface an exogenous FasL protein. Annual Immunology Congress, November 22-25, 2008, Chicago, IL.
28. Abhishek Srivastava, Rich-Henry Schabowsky, Rajesh Sharma, Hong Zhao, **Esma Yolcu** and Haval Shirwan. Costimulation tunes anti-tumor immunity: A novel platform for the development of therapeutic vaccines. Research!Louisville, October 12-16, Louisville, KY, 2009.
29. Abhishek K. Srivastava, Rich-Henry Schabowsky, Rajesh K. Sharma, Hong Zhao, **Esma S. Yolcu** and Haval Shirwan. Costimulation tunes anti-tumor immunity: A novel platform for the development of therapeutic vaccines**.** 2nd PLACE in Graduate Student category at James Brown Cancer Center 8th Retreat, November 6, Louisville, KY, 2009.
30. Hong Zhao, **Esma S. Yolcu**, Laura Bandura-Morgan, Haval Shirwan. Pancreatic Islets Engineered to Display on Their Surface an Exogenous FasL Protein Survive Indefinitely by Inducing Tolerance through Phgocytes/CD4+CD25+Foxp3 Treg Cell Axis. 96th American Association of Immunologists Annual Meeting. May 8-12, Seattle, Washington, 2009.
31. Rich-Henry Schabowsky, Kutlu G. Elpek, Shravan Madireddi, Rajesh K. Sharma, **Esma S. Yolcu**, Laura Bandura-Morgan, Robert S. Mittler and Haval Shirwan. A Novel Form of 4-1BBL Has Better Immunostimulatory Activity than as Agonistic Anti-4-1BB Ab without Ab Associated Severe Toxicity. 96th American Association of Immunologists Annual Meeting. May 8-12, Seattle, Washington, 2009.
32. Sharma, RK., Rich-Henry Schabowsky, Abhishek K. Srivastava, **Esma S. Yolcu**, Kutlu G. Elpek, Hong Zhao, Shravan Madireddi, and Haval Shirwan . SA-4-1BBL costimulatory ligand as an immune modulator and effective vehicle to deliver antigens into dendritic cells for the generation of robust therapeutic antitumor immune responses. 101st American Association for Cancer Research Annual Meeting, April 17-21, Washington, DC. 2010
33. Sharma, RK., **Esma S. Yolcu**, Kutlu G. Elpek, Haval Shirwan. Tumor cells engineered to codisplay on their surface 4-1BBL and LIGHT costimulatory proteins as a novel vaccine approach for cancer immunotherapy. 101st American Association for Cancer Research Annual Meeting, April 17-21, Washington, DC. 2010
34. Laura Bandura-Morgan, Hong Zhao, **Esma S Yolcu**, Haval Shirwan. Phagocytes/TGF-β Axis Plays a Critical Role in the Induction of Localized Tolerance to Allogeneic Pancreatic Islets Engineered to Display on Their Surface SA-FasL Protein. American Transplant Congress, May 1-5, 2010, San Diego, CA.
35. Sharma, RK., Abhishek K. Srivastava, **Esma S. Yolcu**, Haval Shirwan. Vaccination with survivin as a self TAA and SA-4-1BBL is effective in eradicating established lung carcinomas in CD8+ T cell and NK cell dependent manner. 97th American Association of Immunologists Annual Meeting, May 7-11, Baltimore, MD, 2010.
36. Sharma, RK., Abhishek K. Srivastava, **Esma S. Yolcu**, Rich-Henry Schabowsky, Haval Shirwan. SA-4-1BBL serves as an effective immunostimulatory component of HPV-16 E7 protein based therapeutic vaccine in a mouse model of cervical cancer. 97th American Association of Immunologists Annual Meeting, May 7-11, Baltimore, MD, 2010.
37. Sharma, RK., **Esma S. Yolcu**, Kutlu G. Elpek, Haval Shirwan. Tumor cells engineered to codisplay on their surface 4-1BBL and LIGHT costimulatory proteins as a novel approach for cancer immunotherapy. 97th American Association of Immunologists Annual Meeting, May 7-11, Baltimore, MD, 2010.
38. Bandura-Morgan, L., **Esma S. Yolcu**, Hong Zhao, Shravan Madireddi, and Haval Shirwan. SA-FasL-Induced Localized Allotolerance to Pancreatic Islets Is Mediated by Phagocytes/TGF-β Axis. 97th American Association of Immunologists Annual Meeting, May 7-11, Baltimore, MD, 2010.

39. Zhao, H., **Esma S. Yolcu**, Laura Bandura-Morgan, Haval Shirwan. Pancreatic Islets Engineered to Display on Their Surface a Novel Form of FasL Protein Establish Localized Tolerance via Treg Cells. 97th American Association of Immunologists Annual Meeting, May 7-11, Baltimore, MD, 2010.
40. Zhao, H., **Esma S. Yolcu**, Kyle Woodward, Haval Shirwan. FasL engineered splenocytes induce tolerance to allogeneic cardiac graft via an efficient protein display technology-ProtEx. Research!Louisville, Sep, 2011.
41. **Yolcu, E.S**. , H Zhao, K.B. Woodward, H Shirwan. Pancreatic islets engineered with SA-FasL protein induces localized tolerance that is effective in preventing the rejection of a second set unmanipulated islet grafts transplanted under the contralateral kidney capsule during the induction, but not maintenance phase. 24th International Congress of The Transplantation Society, Berlin, Germany. July 15 - 19, 2012
42. Zhao, H., K. B. Woodward, H. Shirwan, **E.S. Yolcu**. Systemic immunomodulation with SA-FasL protein-engineered donor splenocytes induces robust tolerance to cardiac allografts in mice. 24th International Congress of the Transplantation Society, Berlin, Germany. July 15 - 19, 2012
43. Zhao, H., **E.S. Yolcu** , K. B. Woodward, H. Shirwan. Immunomodulation with Pancreatic Islets Engineered to Display on Their Surface a Novel Form of FasL Protein Induces Auto and Allotolerance in Spontaneously Diabetic NOD Mice. The American Diabetes Association's 72nd Scientific Sessions, Philadelphia, PA, .June 8-12, 2012.
44. Sun, Z., H. Shirwan, N.P. Singa, N.Askenasy, **E.S.Yolcu**. T cells engineered to display on their surface a novel form of FasL fail to induce GVHD following transplantation into irradiated allogeneic hosts. 24th International Congress of the Transplantation Society, Berlin, Germany. July 15 - 19, 2012.
45. Zhao, H, K. Woodward, H. Shirwan, and, **E.S. Yolcu** SA-FasL-engineered allogeneic islet grafts treat type 1 diabetes by inducing systemic tolerance at the induction phase, which becomes localized to the graft late post-transplantation. Research!Louisville, Louisville, KY. September 18-21, 2012.
46. Dinc, G., A. Srivastava, R. Sharma, **E.S. Yolcu**, H. Zhao, and H. Shirwan. SA-4-1BBL and MPL as a novel adjuvant system with potent therapeutic efficacy against cancer in the absence of detectable toxicity and autoimmunity. James Graham Brown Cancer Center 11th Annual Retreat. Louisville, KY. October 26, 2012.
47. Kyle Woodward, Hong Zhao, **Esma S Yolcu**, Haval Shirwan. SA-FasL-engineered B cells are necessary but not sufficient to induce transplantation tolerance to cardiac allografts. Research!Louisville, Louisville, KY. September 18-21, 2012.
48. **Esma S Yolcu**, Hong Zhao and Haval Shirwan. A novel technology to display exogenous FasL protein with potent apoptotic activity on pancreatic islets to achieve transplantation tolerance. 9th KY Innovation Entrepreneurship Conference (by KSEF), Lexington, KY. August 29, 2013
49. G. Dinc, A. Srivastava, R.K. Sharma, **E.S. Yolcu**, H. Zhao and H. Shirwan. SA-4-1BBL and monophosphoryl lipid A as a novel adjuvant system with potent therapeutic efficacy against cancer in the absence of detectable toxicity and autoimmunity. 100th Annual Meeting of American Association of Immunologists "IMMUNOLOGY 2013", Honolulu, HI. May 3-7, 2013.
50. Fahed Hakim, Yang Wan, Shelly XL Zhang, **Esma S. Yolcu**, Alba Carreras , Haval Shirwan, David Gozal. Toll-Like Receptor 4 (TLR4) Signaling In TC1 Cell Tumor Accelerated Growth Induced By Chronic Sleep Disruption (SD) In Mice. American Thoracic Society 2013 International Conference, Philadelphia, Pennsylvania. May 17-22, 2013
51. Kyle Woodward*, **Esma Yolcu***, Hong Zhao, Laura Bandura-Morgan, Nadir Askenasy, and Haval Shirwan. Pancreatic islets engineered to display on their surface an apoptotic form of SA-FasL induces localized tolerance via phagocytes/TGF-β/Treg axes. The American

Association of Immunologists Annual Meeting (IMMUNOLOGY 2014), Pittsburg, PA, May 2-6, 2014. (*equal contribution)

52. Hong Zhao*, **Esma S Yolcu***, Kyle B Woodward, Niloufar Ehsani Ahmad, Laura Bandura-Morgan, Nadir Askenasy, and Haval Shirwan. SA-FasL-engineered rat pancreatic islets induces robust localized tolerance through TGF-β/$CD4^+CD25^+FoxP3^+$ Treg cells axis in mice. The American Association of Immunologists Annual Meeting (IMMUNOLOGY 2014), Pittsburg, PA, May 2-6, 2014. (*equal contribution)
53. Hampartsoum Barsoumian, **Esma Yolcu**, Haval Shirwan. SA-4-1BBL overcomes T regulatory cells mediated suppression of T effector cells through IL-2. Research!Louisville, Louisville, KY. September 16-19, 2014
54. Leventhal JR, Elliott MJ, **Yolcu ES,** Bozulic LD, Tollerud DJ, Mathew JM, Konieczna IM, Ison MG, Badder MD, Abecassis MMI, Miller J, Gallon L, Ildstad ST. Immune Reconstitution in Recipients of Living Donor Kidney/Hematopoietic Stem + Facilitating Cell Transplants. American Transplant Congress Annual Meeting, Philadelphia, PA, May 2-6, 2015.
55. Yujie Wen, **Esma Yolcu**, Yiming Huang, Larry E. Kahn, and Suzanne T Ildstad. CD8+TCR- facilitating cells in mobilized peripheral blood mononuclear cells are enriched with IL-10 producing B cells. American Transplant Congress (ATC), Boston, MA, June 11-15, 2016
56. Kyle B Woodward, Hong Zhao**, Esma S Yolcu**, Feng Wang, Melanie Graham, Bernhard Hering, and Haval Shirwan. Porcine Islets Engineered with SA-FasL Protein Induces Robust Tolerance in Mice through CD4+CD25+FoxP3+ Treg Cells. American Transplant Congress (ATC), Boston, MA, June 11-15, 2016.
57. Lalit Batra, Pradeep Shrestha, **Esma S Yolcu**, Hong Zhao, William S Bowen, Kyle B Woodward, María M. Coronel, Min Tan, Andrés J. García, Haval Shirwan. PD-L1-engineered pancreatic islet grafts overcome rejection in allogeneic recipients. IMMUNOLOGY 2018, May 4-8, in Austin, TX, 2018.
58. Pradeep Shrestha, William S Bowen, Lalit Batra, Min Tan, **Esma S Yolcu**, Haval Shirwan. Display of CD47 protein on pancreatic islet grafts improves engraftment following intraportal transplantation. IMMUNOLOGY 2018, May 4-8, Austin, TX, 2018.
59. Kyle B. Woodward, Devon M. Headen, Hong Zhao, Pradeep Shrestha, Min Tan, William S. Bowen, María M. Coronel, Michael D. Hunckler, Jessica D. Weaver, **Esma Yolcu**, Andrés J. García, Haval Shirwan. SA-FasL-engineered PEG microgels as a novel means of modulating immune response to allogeneic islet grafts. IMMUNOLOGY 2018, May 4-8, Austin, TX, 2018.
60. Lalit Batra, Hampartsoum B. Barsoumian, Pradeep Shrestha, Jenci L. Hawthorne, William S. Bowen, Hong Zhao, Nejat K. Egilmez, Jorge G. Gomez-Gutierrez, Haval Shirwan, and **Esma S. Yolcu.** A novel agonist of CD137 immune checkpoint stimulator serves as a cancer immunoprevention agent with efficacy against various tumor types. IMMUNOLOGY 2019, May 9-13, San Diego, CA, 2019
61. M. M. Coronel, J. Weaver, M. Hunckler, **Yolcu E**., H. Shirwan, A. J. García. Localized immune modulation via synthetic biomaterials. Georgia CTSA Statewide Conference, Pine Mountain, GA, February 2019
62. Rodolfo Garza Morales, **Esma Yolcu**, Haval Shirwan, Jorge G. Gomez Gutierrez. A DNA vaccine encoding SA-4-1BBL fused to HPV-16 E7 antigen has prophylactic and therapeutic efficacy in a cervical cancer mouse model. Research!Louisville, Louisville, KY. September 10-13, 2019. **Received first place in the research associate category**.

SELECTED INVITED TALKS:

1. Immunomodulation with donor bone marrow and splenocytes armed with Fas-ligand alleviates graft-versus-host disease, Invited Speaker, Stem Cell 2020, Chicago, IL, March 16-17, 2020

2. Localized immunomodulation with a novel form of Fas ligand for tolerance induction to allogeneic islet grafts, Invited Speaker, Society for Leukocytes Biology, Boston, MA November 15-18, 2019
3. Immunomodulation targeting activation-induced cell death for allograft acceptance, Invited Seminar Speaker, Cincinnati Children's Hospital Medical Center for Transplant Immunology, Cincinnati, OH, June 14, 2019.
4. Targeting Fas Pathway as an Effective Means of Modulating Alloreactive Immune Responses. Department of Child Health, University of Missouri, May 1st, 2019
5. Targeting Fas pathway for the prevention and treatment of graft-vs- host disease. Pediatric Research Institute, University of Louisville, Louisville, KY. Nov 14, 2018
6. Engineering bone marrow cells with an immunomodulatory protein for the prevention of graft-versus-host disease, Keynote Speaker at 10th World Congress and Expo on Cell & Stem Cell Research, New York, USA, March 19-21, 2018
7. Immunomodulation with a novel form of FasL to induce transplantation tolerance. Capa Medical School, Istanbul University, Istanbul, Turkey, June 18, 2014.
8. Establishment of allogeneic mixed chimerism using engineered bone marrow cells. Izmir Biomedicine and Genome Center, Dokuz Eylul University, Izmir, Turkey, July 7, 2014
9. Negative vaccination with donor splenocytes engineered with FasL as an effective meant of inducing transplantation tolerance. 3rd International Conference on Vaccines and Vaccination. Las Vegas, NV. July 29-31 2013
10. Pre-conditioning regimen for HSCs engraftment. Novartis Campus, Basel Switzerland. October 17-18th, 2013
11. Establishment of allogeneic mixed chimerism using bone marrow cells engineered to display on their surface an exogenous FasL protein with potent apoptotic activity. International conference on Clinical&Cellular Immunology, Immunology-2012, Chicago, IL. October 22-24, 2012
12. Engineering donor BM cells with an exogenous form of FasL protein as an novel and effective means of establishing mixed chimerism. Department of Molecular Biology and Genetics, Koc University, Istanbul, Turkey, August 8, 2011.
13. Engineering donor BM cells with an exogenous form of FasL protein as an novel and effective means of establishing mixed chimerism. Division of Nephrology, Kidney Disease Program, University of Louisville, Louisville, KY. May 15, 2009.